

REMARKS

Initially, it is noted that the Examiner has objected to the specification due to certain informalities. Specifically, the Examiner has objected to paragraph [52] wherein it states that the illumination bulb may be operatively connected to a light source by a fiber optic cable. In the Examiner's opinion, such arrangement is not support by the original disclosure and constitutes new matter. Applicant wishes to point out that this arrangement is reflected in paragraph [47] of the specification. However, in order to further prosecution of the present application, applicant has amended paragraph [52] to state that the illumination bulb is connected to a power source. As such, withdrawal of the Examiner's objection is respectfully requested.

The Examiner has rejected claims 1, 3, 10, 12-14, 47, 54-56 and 61-63 under 35 U.S.C. § 102(b) as being anticipated by Kaiya (U.S Patent 5,178,130). In addition, the Examiner has rejected claims 47-50, 54-57, 61, 63 and 64-67 under 35 U.S.C. § 102(b) as being anticipated by Yoon (U.S. Patent No. 6,066,090). Claims 15, 16, 64 and 65 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaiya (U.S. Patent 5,178,130) in view of Yoon (U.S. Patent No. 6,066,090). Additionally, claims 41, 43, 48, 50, 57, 66 and 67 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kaiya (U.S. Patent 5,178,130) in view of Torri (U.S. Patent No. 6,482,149). Finally, the Examiner has rejected claims 1, 3, 10, 12, 15, 16, 41 and 43 under U.S.C. § 103(a) as being unpatentable over Yoon (U.S. Patent No. 6,066,090). As hereinafter described, applicant has amended the pending claims to more particularly define the invention for which protection is sought. Reconsideration of the examiner's rejections is respectfully requested in view of the following comments.

Claim 1 defines an endoscope including a shaft extending along a longitudinal axis, having a distal end receivable in a hollow organ and a proximal end, and defining a hollow channel therethrough. The shaft also includes a steering mechanism for moving the distal end of the shaft from a first position to a second position. A first lens is fixedly attached adjacent to the distal end of the shaft for receiving a first image in a first direction. The first direction is generally forward and parallel to the longitudinal axis of the shaft. The first image is generally a circumferential view of

the hollow organ. A catheter is receivable in the hollow channel of the shaft for extension and retraction therethrough. A second lens is adjacent the distal end of the catheter and is receivable in the hollow channel of the shaft. The second lens is movable in a second direction with respect to the first lens upon emerging from the hollow channel of the shaft and extends beyond the first lens so as to receive a second image in the second direction. The second direction is at a generally 180 degree angle to the first direction and parallel to the longitudinal axis of the shaft. The second image provides a generally circumferential view of the hollow organ. The first and second images define overlapping forward and rear images of the same hollow organ.

As hereinafter described, none of the cited references show or suggest an endoscope system comprising an endoscope having a shaft containing a hollow channel extending through the length of the shaft, and having first image lens fixedly disposed at distal end of the endoscope for providing a first circumferential view of a hollow organ in a forward field of view parallel to the longitudinal axis of the shaft; and a catheter reversibly insertable from one end to other of the hollow channel in the shaft, catheter having second image lens disposed at distal end providing second circumferential view of hollow organ in a rear field of view which is generally 180 degrees to the first field of view and parallel to the longitudinal axis of the shaft and where the first and second circumferential views are representative of common field of view of the same hollow organ.

The Kaiya '130 patent discloses a parent-son type endoscope system. The parent endoscope is a side view endoscope providing a side view of hollow body organ from first side-view point. The son endoscope is also a side viewing endoscope, and is reversibly movable within the channel of the parent endoscope. The son endoscope provides a side view of the hollow organ from a second side-view point. The intent of the endoscope system in the '130 patent is to provide side view of two separate hollow body organs joined to each other, e.g. the duodenum and the bile duct. In such a situation, the parent endoscope provides first side view of the duodenum and the opening of the bile duct in order to aid insertion of the son endoscope into the bile duct. Specifically, unlike the endoscope of claim 1, the endoscope system in the '130 patent does not include a first image lens *fixedly attached* to its distal end of the shaft that receives a first image in a first direction generally forward and parallel to the longitudinal axis of the shaft such that the first image provides

a circumferential view of the hollow organ. Further, the endoscope system in the '130 patent does not enable simultaneous circumferential forward and rear views of a hollow body organ along an axis parallel to the longitudinal axis of the parent endoscope, as required by independent claim 1. It can be appreciated that such a structure is required to completely examine a hollow body organ during a single passage of the endoscope therethrough. As hereinafter described, the teachings of the Yoon '090' and Torri '149' patents cannot cure the deficiencies of the Kaiya '130 patent.

The Yoon '090 patent discloses an endoscope having two or more branches. Each branch includes a source of illumination and a lens train, fiber optic bundle or solid state image receiving device. Each of these branches is independently manipulatable or steerable in order to produce an image from a distinct point of view within the body. The images are juxtaposed on a video monitor for simultaneous viewing by a surgeon. According to another aspect of the Yoon '090' patent, as shown in Fig. 1, the endoscope system includes a hollow endoscope body (12) accommodating multiple flexible endoscope branches (14,16,18). It is to be noted that the endoscope body (12) is basically a tubular hollow structure accommodating multiple endoscope branches. More specifically, unlike the endoscope of independent claim 1, the hollow endoscope body in the '090 patent does not have a lens fixed thereto and does not have a steering mechanism. Applicant respectfully disagrees with the Examiner's position that the hollow endoscope body and one flexible endoscope as provided for in the '090 patent would be equivalent of the shaft of the present invention. There is no teaching or suggesting in the Yoon '090' patent for such an arrangement. In the absence of an independent steering mechanism and independent lens, the hollow endoscope body in the '090 patent does not have means to be independently advanced into a tortuous hollow body organ such as colon. Consequently, while the endoscope system of Fig. 1 of Yoon '090' patent may be useful in situations where the hollow tubular body can be inserted blindly into a body cavity close to the surface, such as being inserted into peritoneal cavity through a surgical incision on the skin, the same does not hold true for a long and tortuous hollow organ such as colon, to which the endoscope system of the present invention is primarily directed towards.

As heretofore described, unlike the endoscope system disclosed in the '090 patent, the present invention discloses an endoscope wherein the 'main tubular body' (shaft) includes a first

image lens *fixedly attached* to its distal end. Such a structure is entirely absent from the cited ‘090 patent. Further, unlike the endoscope of independent claim 1 wherein the shaft has a steering mechanism independent of the catheter which, in turn, is reversibly insertable through a hollow channel contained in the shaft, no independent steering mechanism is provided for the shaft (“main tubular body”) of the endoscope provided for in the ‘090 patent.

In view of the foregoing, it is believed that independent claim 1 defines over such references and is in proper form for allowance. Claims 3, 10, 12-13, 15-16, 43-44 and 67 depend either directly or indirectly from independent claim 1 and further define an endoscope not shown or suggested in the prior art. It is believed that claims 3, 10, 12-13, 15-16, 43-44 and 67 are allowable as depending from an allowable base claim and in view of the subject matter of each claim.

Referring to claim 47, an endoscope system is provided for examination of a hollow body component. The endoscope system includes an endoscope having an outer periphery, a steering mechanism and a distal end fixedly housing a first image lens for receiving a first image in a first direction. The endoscope defines a hollow channel therethrough. The first direction is generally forward of and parallel to the longitudinal axis of the distal end of the endoscope and the first image is generally a circumferential view of the hollow body component. A catheter is reversibly received within the channel of the endoscope and has proximal and distal ends. A rear view module is adjacent the distal end of the catheter and includes a second image lens. At least a portion of the rear view module is movable between first and second directions. The second direction is at an angle of generally 180 degrees to the first direction while rear view module extends distally from the distal end of the endoscope and second image depicts a generally circumferential view of the hollow body component. The first and second images represent a common field of view within the hollow body component. The endoscope is insertable into the hollow body component under the image guidance of the first image and the steering mechanism.

As previously noted with respect to independent claim 1, nothing in either of the cited references show or suggest an endoscope system wherein the endoscope or shaft includes a first image lens *fixedly attached* to its distal end thereof so as to provide a generally *forward*

circumferential view of a hollow body component wherein the endoscope includes a *steering mechanism*. Further, nothing in the cited references shows or suggests an endoscope system wherein the shaft is capable of being independently inserted into a hollow body component under guidance from the first image lens and the steering mechanism thereof. Furthermore, unlike the endoscope system of claim 47 wherein the rear view module is attached to distal end of catheter that is reversibly insertable into a hollow channel defined in the shaft, such a structure is absent from the cited references. As a result, the endoscope system of the present invention allows for the rear view module to be urged from distal end of the hollow channel to provide a circumferential rear view of the same hollow component that is substantially at an angle of 180 degrees from the first forward view. Again, such an arrangement is entirely absent from both the '090 patent and the '130 patent. As such, neither of the cited references allow for the first and second images obtained by the endoscope system to represent a common field of view within the hollow body component. Hence, in view of the foregoing, it is believed that independent claim 47 defines over the cited references and is in proper form for allowance.

Claims 48-50 depend either directly or indirectly from independent claim 47 and further define an endoscope system not shown or suggested in the prior art. It is believed that claims 48-50 are allowable as depending from an allowable base claim and in view of the subject matter of each claim.

Claim 54 defines an endoscope including a first lens for receiving a first image in a fixed first direction. The first image is a generally circumferential view of the first direction. A shaft has a distal end for fixedly receiving the first lens therein. The shaft defines a hollow channel therethrough and has a steering mechanism to deflect the distal end in at least four perpendicular directions. A second lens receives a second image in a second direction. The second direction is at an angle generally 180 degrees to the first direction and the second image is a generally circumferential view of the second direction. A catheter is reversibly received within the channel of the shaft and has proximal and distal ends and a steering mechanism. A rear view module is removably received in the hollow channel and houses the second lens operatively attached to the

distal end of the catheter. The rear view module includes a steering mechanism for moving the rear view module in the second direction upon exit from the hollow channel.

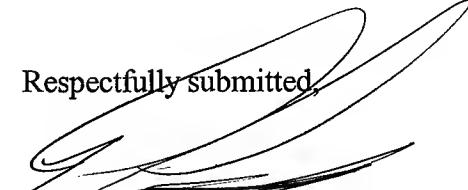
As heretofore described with respect to independent claims 1 and 47, neither of the cited references show or suggest an endoscope wherein the shaft includes a first image lens *fixedly attached* to its distal end that provides a first image that is a generally *circumferential forward view* of a first direction. Further, unlike the endoscope of independent claim 54 wherein the shaft has a steering mechanism *to deflect the distal end of the shaft in at least four perpendicular directions* independent of the catheter which, in turn, is reversibly insertable through a hollow channel contained in the shaft. No independent steering mechanisms are provided for the shafts of the endoscopes disclosed in the cited references. Furthermore the shaft of present invention is capable of insertion into long and tortuous hollow body organ such as colon independently under guidance of first image lens and steering mechanism thereof. This feature in conjunction with the arrangement and workings of the rear view catheter defines over the cited prior art. Consequently, it is believed that the endoscope system of independent claim 54 defines over the cited references and is in proper form for allowance.

Claims 55-57 and 61-66 depend either directly or indirectly from independent claim 54 and further define an endoscope not shown or suggested in the prior art. It is believed that claims 55-57 and 61-66 are allowable as depending from an allowable base claim and in view of the subject matter of each claim.

Applicant believes that the present application with claims 1, 3, 10, 12-13, 15-16, 43-44, 47-50, 54-57 and 61-67 is in proper form for allowance and such action is earnestly solicited. Applicant believes that no fees are due in connection with this Amendment. However, if Examiner considers any fees due in conjunction with this or any future communication, authorization is given to charge payment of such fees or credit any overpayment to Deposit Account No. 50-1170.

Should the Examiner have any questions or comments regarding this Response which would expedite the prosecution of the application, the Examiner is invited to contact the undersigned at the telephone number appearing below.

Respectfully submitted,



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